What is claimed:

1. A cluster resonator, comprising:

a first conducting plane;

a second substantially parallel conducting plane;

a cluster of vias of essentially uniform length oriented substantially normal to the conducting planes and interposed therebetween;

a first conducting pad disposed in a third plane substantially parallel and proximate the first conducting plane and coupled with the vias of the cluster of vias proximate their first ends;

a second conducting pad disposed in a fourth plane substantially parallel and proximate the second conducting plane and coupled with the vias of the cluster of vias proximate their second ends.

2. The cluster resonator of claim 1, wherein the combined inductance and capacitance of the resonator elements form an electromagnetically resonant shunt circuit between the first and second conducting planes.

3. The cluster resonator of claim 2, wherein the vias of the cluster of vias are disposed along a perimeter that defines an interior region.

4. The cluster resonator of claim 3, wherein one or more interior vias are routed within the interior region of the cluster of vias.

5. The cluster resonator of claim 4, wherein the interior vias comprise portions of transmission lines passing electrical signals vertically through the cluster resonator.

6. The cluster resonator of claim 1, wherein the first conducting pad is external relative to the first and second conducting planes.

7. The cluster resonator of claim 1, wherein the first conducting pad is internal relative to the first and second conducting planes.

8. The cluster resonator of claim 1, wherein the second conducting pad is external relative to the first and second conducting planes.

9. The cluster resonator of claim 1, wherein the second conducting pad is internal relative to the first and second conducting planes.

10. The cluster resonator of claim 1, wherein the first and second conducting pads are internal relative to the first and second conducting planes.

11. The cluster resonator of claim 1, wherein the first and second conducting pads are external relative to the first and second conducting planes.

12. The cluster resonator of claim 1, wherein the topology comprises a mechanically balanced structure.

13. The cluster resonator of claim 2, wherein the first and second conducting planes are metallic layers incorporated with a multi-layered panel circuit.

14. The cluster resonator of claim 14, wherein the first and second conducting planes are metallic layers incorporated within a multi-layered printed circuit board and the cluster resonator comprises an array of plated through holes.

15. The cluster resonator of claim 14, wherein the first and second conducting planes are metallic layers incorporated within a multi-chip module.

16. The cluster resonator of claim 14, wherein the first and second conducting planes are metallic layers incorporated within a semiconductor chip.

17. The cluster resonator of claim 3, wherein the cluster of vias is disposed along a circular path.

18. The cluster resonator of claim 3, wherein the cluster of vias is disposed along an elliptical path.

19 The cluster resonator of claim 3, wherein the cluster of vias is disposed along a polygonal path.

20. The cluster resonator of claim 5, wherein the number and spacing of the vias of the cluster of vias effect a Faraday cage that substantially shields the interior region from RF fields propagating within the first and second conducting planes.

21. The cluster resonator of claim 20, wherein the number and spacing of the vias of the cluster of vias in relation to the interior vias effect a predetermined line impedance in the interior vias.

22. A cluster resonator, comprising:

a first conducting plane;

a second substantially parallel conducting plane;

a cluster of vias of essentially uniform length oriented substantially normal to the conducting planes and interposed there between;

first ends of each via in the cluster of vias coupled with the first conducting plane;

a conducting pad disposed in a third plane parallel to and proximate the second conducting plane and coupled to each via in the cluster of vias proximate their second ends.

23. The cluster resonator of claim 22, wherein the combined inductance and capacitance of the resonator elements form an electromagnetically resonant shunt circuit between the first and second conducting planes.

24. The cluster resonator of claim 23, wherein the vias of the cluster of vias are disposed along a perimeter that defines an interior region.

25. The cluster resonator of claim 24, wherein one or more interior vias are routed within the internal region of the cluster of vias.

26. The cluster resonator of claim 25, wherein the interior vias comprise portions of transmission lines passing electrical signals vertically through the resonant element.

27. The cluster resonator of claim 22, wherein the conducting pad is internal relative to the first and second conducting planes.

28. The cluster resonator of claim 22, wherein the conducting pad is external relative to the first and second conducting planes.

29. The cluster resonator of claim 22 comprising a second cluster of vias, wherein the vias in the second cluster of vias are coupled proximate their first ends to the second conducting plane and proximate their second ends to a second conducting pad disposed in a fourth plane parallel to and proximate the first conducting plane.

30. The second cluster resonator of claim 29, wherein the second conducting pad is disposed in a fourth plane parallel to and proximate the first conducting pad.

31 The cluster resonator of claim 22, wherein the topology comprises a mechanically balanced structure.

32. The cluster resonator of claim 23, wherein the first and second conducting planes are metallic layers incorporated with a multi-layered panel circuit.

33. The cluster resonator of claim 32, wherein the first and second conducting planes are metallic layers incorporated within a multi-layered printed circuit board and the cluster resonator comprises an array of plated through holes.

34. The cluster resonator of claim 32, wherein the first and second conducting planes are metallic layers incorporated within a multi-chip module.

35. The cluster resonator of claim 32, wherein the first and second conducting planes are metallic layers incorporated within a semiconductor chip.

36. The cluster resonator of claim 24, wherein the cluster of vias is disposed along a circular path.

37. The cluster resonator of claim 24, wherein the cluster of vias is disposed along an elliptical path.

38. The cluster resonator of claim 24 wherein the cluster of vias is disposed along a polygonal path.

39. The cluster resonator of claim 26, wherein the number and spacing of the vias of the cluster of vias effect a Faraday cage that substantially shields the interior region from RF fields propagating within the first and second conducting planes.

40. The cluster resonator of claim 39, wherein the number and spacing of the vias of the cluster of vias in relation to the interior vias effect a predetermined line impedance in the interior vias.